IN THE CLAIMS:

Please amend claims 1, 5, 7, and 15 as follows:

1. (Currently Amended) An array of at least 10 different antibodies arranged in discrete areas of a solid support wherein each antibody specifically binds a different antigen and wherein each area of the array is identified with expression of a polynucleotide sequence encoding the antigen.

2. (Original) The array of claim 1, wherein the antibodies are comprised of monoclonal antibodies.

3. (Original) The array of claim 1, wherein the antibodies are comprised of polyclonal antibodies.

4. (Original) The array of claim 1, wherein the antibodies are a mixture of isotypes.

5. (Currently Amended) The array of claim 1, wherein the antibodies located at the discrete areas of the sold support are comprised of ~~murine~~ polyclonal IgG antibodies obtained from ~~DNA~~ immunization of a murine animal with the polynucleotide sequence encoding the antigen.

6. (Original) The array of claim 5, wherein the discrete areas of the solid support contain murine sera.

7. (Currently Amended) The array of claim 1, wherein the array is comprised of between at least ~~10 different antibodies is between~~ 100 different antibodies and 10,000 different antibodies located at discrete areas of the solid support.

8. (Original) The array of claim 1 further comprising a sample containing a protein derived from human cells.

9-14. (Cancelled)

15. (Currently Amended) A device comprising an array of 10 reaction sites in a pre-selected pattern, wherein each reaction site contains an antibody that specifically binds a protein wherein each area of the array is identified ~~the antibody is correlated~~ on a one-to-one basis with an isolated polynucleotide sequence that ~~expressed to~~ encodes the protein to which the antibody specifically binds.

16. (Previously Amended) The device of claim 15 wherein each reaction site is comprised of murine antibodies.

17. (Original) The device of claim 15 wherein each reaction site is comprised of polyclonal antibodies.

18. (Original) The device of claim 15 wherein each reaction site is comprised of IgG antibodies.

19. (Previously Amended) The device of claim 15 wherein at least 10% of the reaction sites of the array is comprised of aliquots of homogenous antibodies.

20. (Previously Amended) The device of claim 15 wherein at least one reaction site contains murine sera.

21. (Cancelled)

Claim Rejections – 35 USC § 112 – Second Paragraph

The rejections of claim 1 under 35 USC § 112, second paragraph, calls for a clarification of how the binding of an antibody to an antigen is related to a polynucleotide sequence. Applicant has amended the claims to describe one embodiment of the invention wherein the antibodies localized at each discrete area of the array are identified with the polynucleotide sequence used to generate the antibodies (through in vivo immunization) that may bind the antigen in a sample. Because the antibodies of each member of the array are generated by the expression of an antigen in vivo, the selected area of the array is, as a structural feature of the device, thus "identified" with the corresponding polynucleotide sequence. In this embodiment, the reaction of antigen in a sample to the antibodies at the discrete areas of the array identified the polynucleotide sequence whose expression product is found in the sample.

The Wagener Reference Does Not Disclose a Device Where the Discrete Areas of the Array Identify a Polynucleotide.

The Examiner's rejection under § 102 over the Wagener et al. reference recognizes that Wagener does not organize the array to convey any information regarding the individual members of the array, but gives no patentable weight to the correlation to a polynucleotide sequence. Applicant submits that the amended claims specify a structural feature of the individual members of the array. Namely, the arrangement of the array into areas that convey information about polynucleotides expressed to yield the antibodies confined at the discrete areas of the array. Thus, a structural feature of the array provides information about the polynucleotide from the protein-antibody interaction. This feature is not disclosed by Wagener et al. and claims 1-8, 15-18 and 20 cannot be anticipated by the Wagener et al. reference.

The Array of Chin et al. Does Not Have Discrete Areas of an Array to Identify Polynucleotide Expression.

Claims 1 and 15 are not anticipated by the Chin et al. patent under 35 USC § 102(e). A patentable distinction between Chin et al. and the present invention is a claim element reciting an array with a direct correlation or express identification between a polynucleotide sequence and an antibody located at a discrete area of the array. Chin et al., while disclosing an array of proteins or antibodies having reagents at predetermined positions, focuses on immobilizing known polypeptides and does not recite any feature that conveys information about a polynucleotide per se. For example, at column 4, line 60, Chin discloses that the antibodies may be immobilized and that the identity of the proteins captured thereby can be known by identifying the protein/antibody interaction. Furthermore, at column 5, line 47, Chin et al. states that

> "by localizing the position of the interested protein, the identity of its interacting protein is known (because the identity of each agent is predetermined). The protein of interest can be localized by either its specific antibodies or other methods."

In contrast, the present invention conveys information by identification of a polynucleotide sequence whose expression has yielded an antibody localized at each are of the area and the protein antibody interaction identified a polynucleotide without having any information whatsoever about the protein involved. Thus, the array of the present invention inherently contains information about gene expression rather than protein expression patterns, protein-protein interactions, or post-translational modifications. Therefore, the organization of the concentration of reactive species at each portion of the array and the identification of polynucleotides with these tangible species should be considered a structural feature of the array. The difference between the array of Chin et al. and that of the present claimed invention is based on the difference in information conveyed by the

binding reactions that occur as part of the structure of the array. Chin et al. do not identify any binding reaction with polynucleotide expression because the antibodies are not explicitly obtained from an in vivo expression event. For these reasons, the claimed invention recites an element not contemplated by Chin et al., tangible information about a polynucleotide, and thus Chin et al. does not anticipate the claims of the present invention under 35 USC § 102(e).

Claim 19 is not Rendered Obvious Under 35 USC § 103(a) by Wagener et al.

For the reasons noted in the first paragraph above, Wagener et al. do not disclose all of the elements of claim 1, because the information identifying a polynucleotide is not made by virtue of the antigen-antibody interaction at the surface of the array. Thus, a prima facie case under 35 USC § 103(a) cannot be established by the Wagener et al. reference even if portions of the reaction sites are deemed to be comprised of aliquots of homogenous antibodies. This feature is not a routine discovery of an optimum range of a process, but rather a recitation of a structural feature of one embodiment of the invention that provides direct information about the nature of the polynucleotide based on the protein-antibody interaction occurring at the discrete area of the array.

In light of the above, applicant requests favorable consideration and allowance of the pending claims. If the Examiner has any questions regarding the foregoing, or if the Examiner believes that an interview would facilitate the examination of this application, or if any additional information is required, the Examiner is invited to contact the undersigned at 949/567-6700, X 7740.

Respectfully submitted,

ORRICK, HERRINGTON & SUTCLIFFE LLP

Dated: December 15, 2003

By: _____
Kurt T. Mulville, Reg. No. 37,194

4 Park Plaza, Suite 1600
Irvine, CA 92614
949/567-6700 X 7740 Telephone
949/567-6710 Facsimile